

# Work Order ID 61298

Friday, August 13, 2010 1:02:39 PM



Page 1

Item ID: D206-667-203

Accept



Setup Start



Revision ID:

Item Name: Crosstube Aft

Stop



Start Date: 8/16/2010 Start Qty: 1.00



Cust Item ID:

End Date: 8/30/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: *MF*

Date: *10-8-13*

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
--------------------------------	--------------------------	----------------------	---------	--------	--------------	---------------	---------------	------------------	----------------

Draw Nbr	Revision Nbr
D206-667-243	Rev C

100



DOCUMENT CONTROL

0.00

DC

Memo

0.00

Document Control

Photocopy bluefile and create labels as per PPP D206-667-203 CHG003

*8/10/09/09*

110



BENDING MACHINE - CROSSTUBES

0.00

CNC Bend 2

Memo

0.00

CNC Alpha 160 Bender

Bend tube as per Dwg D206-667-243 using CNC bender program 206L-AF

*(IX)*

*2*

*MB*

*10-09-20*

120



QC15- Crosstube Dimensional Check

0.00

QC

Memo

0.00

Quality Control

*8/10/09/20*

*(70)*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
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QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130		0.00							
	Crosstubes								
Crosstubes									
Crosstubes									
	<b>Memo</b>	0.00							
	1-Drill pilot holes in tube using drill Jig DT8583 & DT8584 as per Dwg D206-667-243 and drill table DT8577. Locate hole #6 for towers as per QSI 10. Drill all (3) top holes.								
	2-Drill and Ream all holes in tube to finish size using drill Jig DT8583 & DT8584 as per Dwg D206-667-243 Check dimensions between holes on all four sides.								
	3-Flip tube and switch drilling Jigs from right to left, left to right. Locate Jigs off existing holes using "T" pins.								
	4-Drill pilot holes using drill Jig DT8583 & DT8584 as per Dwg D206-667-243. Drill only the top (2) holes.								
	5-Drill & ream the top (2) holes to finish size using drill Jig DT8583 & DT8584 as per Dwg D206-667-243								
	6-Drill Fwd rivet holes using drill Jig DT8789FWD as per Dwg D206-667-143. Note: Fwd side has 3x top holes.								
	7-Drill Aft rivet holes using drill Jig DT8789 as per Dwg D206-667-243.								
	8-C'sink holes as per Dwg D206-667-243.								
	9 -Scribe part # and batch # using vibrating stylus as per Dwg D206-667-243 Inside of Cuff(Donot engrave on outside of tube)								
	10 -Deburr & Inspect for surface damage. Repair damage within limits as per								

MP/SAN  
10-09-21

DP 10-9-21

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_

Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
	Dwg D206-667-243								
140  HandFXtube	Crosstubes Chemical Conversion	0.00							
Hand Finishing Crosstubes	Memo	0.00							
150  QC	QC3- Inspect Part Finish	0.00							
Quality Control	Memo	0.00							
160  QC	QC5- Inspect part completeness to step on W/O	0.00							
Quality Control	Memo	0.00							

DP 10-9-21

8/10/09/21

8/10/09/21

70

W/O:		WORK ORDER CHANGES					
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Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
170 	Outsource process - NDT per QSI038 4.1	0.00							
Outsource2	<b>Memo</b>	0.00							
Outsource process - NDT	Liquid Penetrant Inspection as per QSI 038Or Issue P/O: <u>12615</u> LPI as per ASTM 1417 Level 2 Attach copy of NDT results to work order								<u>CZ</u> <u>10/9/22</u> <u>①</u>
180 	Packaging	0.00							
Packaging	<b>Memo</b>	0.00							
Packaging	Ensure copy of NDT results attached to work order.								<u>CZ</u> <u>10/9/22</u> <u>①</u>
190 	QC5- Inspect part completeness to step on W/O	0.00							
QC	<b>Memo</b>	0.00							
Quality Control	Ensure results are as per Dwg D206-667-243								<u>ml</u> <u>10</u> <u>09</u> <u>27</u> <u>①</u>

W/O:		WORK ORDER CHANGES					
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Run Start



QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
200		0.00							
	SprayPaint								
SprayPaint	<b>Memo</b>	0.00							
Spray Painting	1-Prime inside and outside crosstube as per QSI 005 4.2 2-Paint outside crosstube with White Imron as per QSI 005 4.2								
	PRIME: Start Time: <u>9:30</u> Finish Time: <u>10:30</u>								
	PAINT: Start Time: <u>2:30</u> Finish Time: <u>3:30</u>								
210									
	QC14- Inspect Spray Paint	0.00							
QC	<b>Memo</b>	0.00							
Quality Control	Wrap in plastic bag to protect from scratches								

ml 10 27 1

1 10.05.28

W/O:		WORK ORDER CHANGES					
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Required Date: 8/30/2010 Req'd Qty: 1.00



Customer:

Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
220  Crosstubes	Crosstubes	0.00				<i>mm</i>	<i>10</i>	<i>09</i>	<i>28</i> ①
Crosstubes	<b>Memo</b> 1-Install nut plates as per Dwg D206-667-243.	0.00							
230  Crosstubes	Skidtubes	0.00				<i>ml</i>	<i>10</i>	<i>09</i>	<i>28</i> ①
Crosstubes	<b>Memo</b> 1-Install support using 0.03" to 0.06" thick layer of magnobond 6398 per QSI 015. Let cure for 12h after installation and prior to packaging. Note: (3) top holes should be facing up. A/R Magnobond 6398 : <i>114158 exp. 01/2011</i> 2-Install supports and clamps as per Dwg D206-667-243. <u>Torque clamps to 80-100 in lb</u> <i>mm 10.09-29</i> ①	0.00							

W/O:		WORK ORDER CHANGES					
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Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_  
QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start  
Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
240  QC Quality Control	QC5- Inspect part completeness to step on W/O  Memo	0.00 0.00		810102129		(X)			
250  Packaging Packaging	Pick Kit  Memo	0.00 0.00							10/9/29sf
260  QC Quality Control	QC4- 100% Inspect kits for completeness  Memo	0.00 0.00		810109129		(X)			

W/O:		WORK ORDER CHANGES					
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Reference:

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QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
270		0.00							
	Packaging								
Packaging	Memo	0.00							
Packaging	Identify and pack for shipping as per PPP D206-667-203								
	Location: _____								
	PPP Rev: _____								
280		0.00							
	QC21- Final Inspection - Work Order Release								
QC	Memo	0.00							
Quality Control									

10/10/29

10/09/29

ME 10-9-29

W/O:		WORK ORDER CHANGES					
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Page 1

\_\_\_\_\_

**Required Date:** 8/30/2010

**Required Qty: 1.00**

**Comments:** IPP Rev:F 05.09.01 Add holes for compatibility with Bell Skidtubes KJ/JLM  
IPP Rev:G 08-06-03 update as per DS19415 (ECN1198) DD verified by:ec  
IPP Rev:H 08-07-18 remove thread masking in step 12 DD verified by:EC  
IPP Rev:I 08-12-15 add magnobond DD verified by:EC  
IPP Rev J 09.01.06 ECN 08-562 EC verified by:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
AN5-10A  Bolt		Purchased	No			250	Each	155.0000	10	10		10/9/09 SP	
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				ST337		155							
				114752		55							
				115108		100							
AN5-32A  Bolt		Purchased	No			250	Each	232.0000	4	4		10/9/09 SP	
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				ST340		232							
				113121		4							
				114056		74							
				114405		50							
				115016		50							
				115108		50							
				15072		4							
AN5-34A  Bolt		Purchased	No			250	Each	88.0000	4	4		10/9/29 SP	
				<u>Location</u>		<u>Loc Qty</u>		<u>Loc Code</u>					
				ST340		88							
				113149		38							
				113226		50							

W/O:		WORK ORDER CHANGES					
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Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

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Parent Item: D206-667-203

Parent Item Name: Crosstube Aft

Start Date: 8/16/2010

Required Date: 8/30/2010

Start Qty: 1.00

Required Qty: 1.00

AN960JD516 NAS1149D0563J Purchased No

250

Each

34.0000

18

18



Washer



*M114742 10/9/29 SP*

Location

Loc Qty

Loc Code

ST

34

103694

18

107534

12

109287

4

D206-667-203TRN Manufactured No

220

Each

2.0000

1

1



Crosstube Turning Detail



*B-61982 MB 10-09-20*

Location

Loc Qty

Loc Code

LG

2

60377

1

60378

1

D2873-043 Manufactured No

220

Each

32.0000

2

2



Nut Plate Assembly



*M 10.09.28*

Location

Loc Qty

Loc Code

LG

32

53966

10

56466

2

57337

20

D2873-045 Manufactured No

220

Each

28.0000

2

2



Nut Plate Assembly



*M 10.09.28*

Location

Loc Qty

Loc Code

LG

28

53968

9

57336

19

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Shop Packet Print

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Parent Item: D206-667-203



Parent Item Name: Crosstube Aft

Start Date: 8/16/2010

Required Date: 8/30/2010

Start Qty: 1.00

Required Qty: 1.00

D2892-1

Manufactured No

230

Each

48.0000

2

2



Support



*m* 10 09 28

Location

Loc Qty

Loc Code

LG

48

41986

12

42785

20

53124

11

55787

5

D3595-063-450

Manufactured No

230

Each

30.0990

4

4



RUBBER CUSHION



*m* 10 09 28

Location

Loc Qty

Loc Code

LG

30.09897368

53775

5.97897368

58161

3.56

59580

20.56

MS20601-AD4W10

Purchased No

230

Each

172.0000

14

14



RIVET



*m* 10 09 28

Location

Loc Qty

Loc Code

LG051

158

114245

58

115405

100

ST322

14

113220

14

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Shop Packet Print

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Start Date: 8/16/2010

Required Date: 8/30/2010

Start Qty: 1.00

Required Qty: 1.00

MS21042L5

Purchased

No

250

Each

734.0000

4

4



Nut



10/9/09

Location

Loc Qty

Loc Code

ST139

234

114813

234

ST300

500

115156

500

✓

MS21920-22

Purchased

No

230

Each

102.0000

4

4



Clamp(per MIL-DTL-8783C)



10.09.28

Location

Loc Qty

Loc Code

LG

102

111210

3

114077

99

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

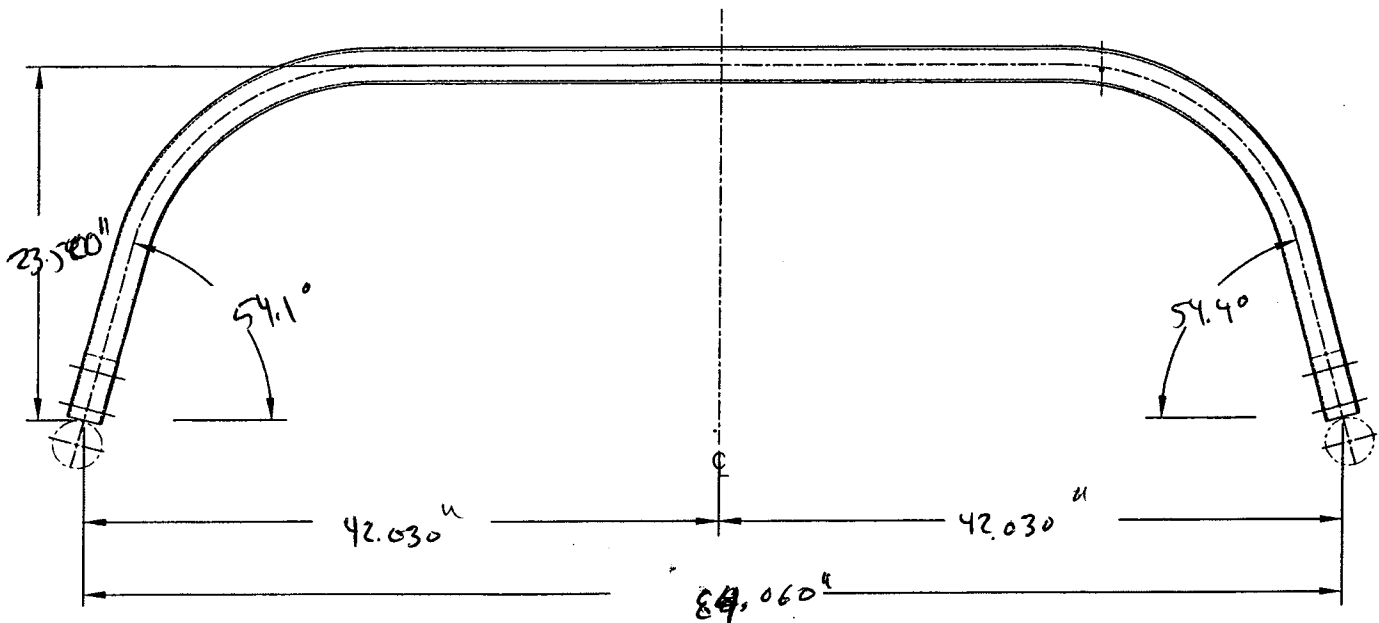
NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



DART AEROSPACE LTD		Work Order:	61298
Description: Crosstube High Aft (206L)		Part Number:	D206-667-203
Inspection Dwg: D206-667-243 Rev: C		Page 1 of 1	

Required Dimension	Min	Max
Height	23.39	23.65
1/2 Span	41.79	42.05
Angle	54	56
Total Span	83.58	84.1



Comments

QC15 Inspection	S
Date	10/09/20

Rev	Date	Change	Revised by	Approved
A	07.02.06	New Issue	KJ/JM	
B	09.11.17	Dwg Rev updated	KJ	
C	09.12.14	Dimensions update per Dwg Rev C	KJ	



Item	Qty -243	Part Number	Description
1	X	D206-667-243	CROSSTUBE ASSEMBLY (206L HIGH AFT)
2	1	D6004-115	CROSSTUBE
3	2	D2873-043	NUT PLATE
4	2	D2873-045	NUT PLATE
5	2	D2892-1	SUPPORT
6	4	D3595-063-450	RUBBER CUSHION
7	4	MS21920-22	CLAMP
8	14	MS20601AD4W10	RIVET (OR NAS9302B-4-10)
9	A/R	MAGNOBOND 6398	ROCKWELL SPECIFICATION RBO-120-023 ADHESIVE (TEXTRON/BELL SPEC. 299- 947-100, TYPE II, CLASS 2 ADHESIVE)

#### GENERAL NOTES:

- 1) MATERIAL: MANUFACTURED FROM D6004-115  
FINISHED LENGTH = 104.91±0.020
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1  
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2  
PAINT OUTSIDE PER DART QSI 005 4.2
- 3) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED.
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED.
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX.
- 6) IDENTIFICATION: SCRIBE DART PART NUMBER "D206-667-243" AND BATCH NUMBER ON  
INSIDE OF CUFF USING VIBRATING STYLUS.
- 7) WEIGHT: 21.9 lbs
- 8) PART IS SYMMETRIC ABOUT CENTERLINE.
- 9) RUN CUTTER OFF PART WHERE INDICATED. BLEND OUT EDGE LONGITUDINALLY,  
TRANSITION SHOULD BE SMOOTH.
- 10) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE  
TO BENDING IS 6% BASED ON O.D.
- 11) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038.
- 12) INSTALL D2892-1 SUPPORT USING 0.03" TO 0.06" THICK LAYER OF MAGNOBOND 6398 PER  
QSI 015. LET CURE FOR 12 HOURS AFTER INSTALLATION AND PRIOR TO PACKAGING.
- 13) INSTALL MS21920-22 CLAMPS WITH D3595-063-450 RUBBER CUSHIONS TO SECURE THE  
D2892-1 SUPPORT ON TOP SIDE OF THE CROSSTUBE. ENSURE CLAMP MECHANISMS ARE  
LOCATED ON CROSSTUBE SUPPORTS.
- 14) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE  
OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM SURFACE DEFECTS SUCH AS  
SCRATCHES, NICKS, OR DENTS. DEFECTS UP TO 0.005" MAY BE BLENDED OUT  
LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 15) TORQUE CLAMPS 80 TO 100 IN-LB. ENSURE AT LEAST 1.5 THREADS ARE SHOWING IN  
SAFETY AND THAT NUT HAS NOT BOTTOMED-OUT AFTER TORQUING.

RELEASED  
8/11/2006

C	REVISE GENERAL NOTES/PART LIST (ZN D7-1); REORGANIZED VIEWS AND REFORMATTED DRAWING TO CURRENT STANDARDS. D3595-063-450 WAS D2856-400-773 (ZN D6-2 & AS-2); REMOVED REF. & ADD TOLERANCES (ZN 4-3, CS-3, D3-3); RELOCATED FLAG #6 (ZN A8-3) PER NCR 210; MOVED TURNING DETAIL & UPDATED TOLERANCE TO SHEET 4.	RF	08.11.06
B	ADD HOLES AND NUT PLATES FOR COMPATABILITY WITH BHT/AA SKUDTUBES	PH	05.07.26
A	NEW ISSUE	CP	00.11.17
REV.	DESCRIPTION	BY	DATE
DESIGN	RF	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. C
MFG. APPR.	RF	D206-667-243	SHEET 1 OF 4
APPROVED	RF	TITLE	SCALE
DE APPR.	RF	CROSSTUBE ASS'Y (206L HIGH AFT)	NTS
DATE	08.11.06	COPYRIGHT © 2006 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD	

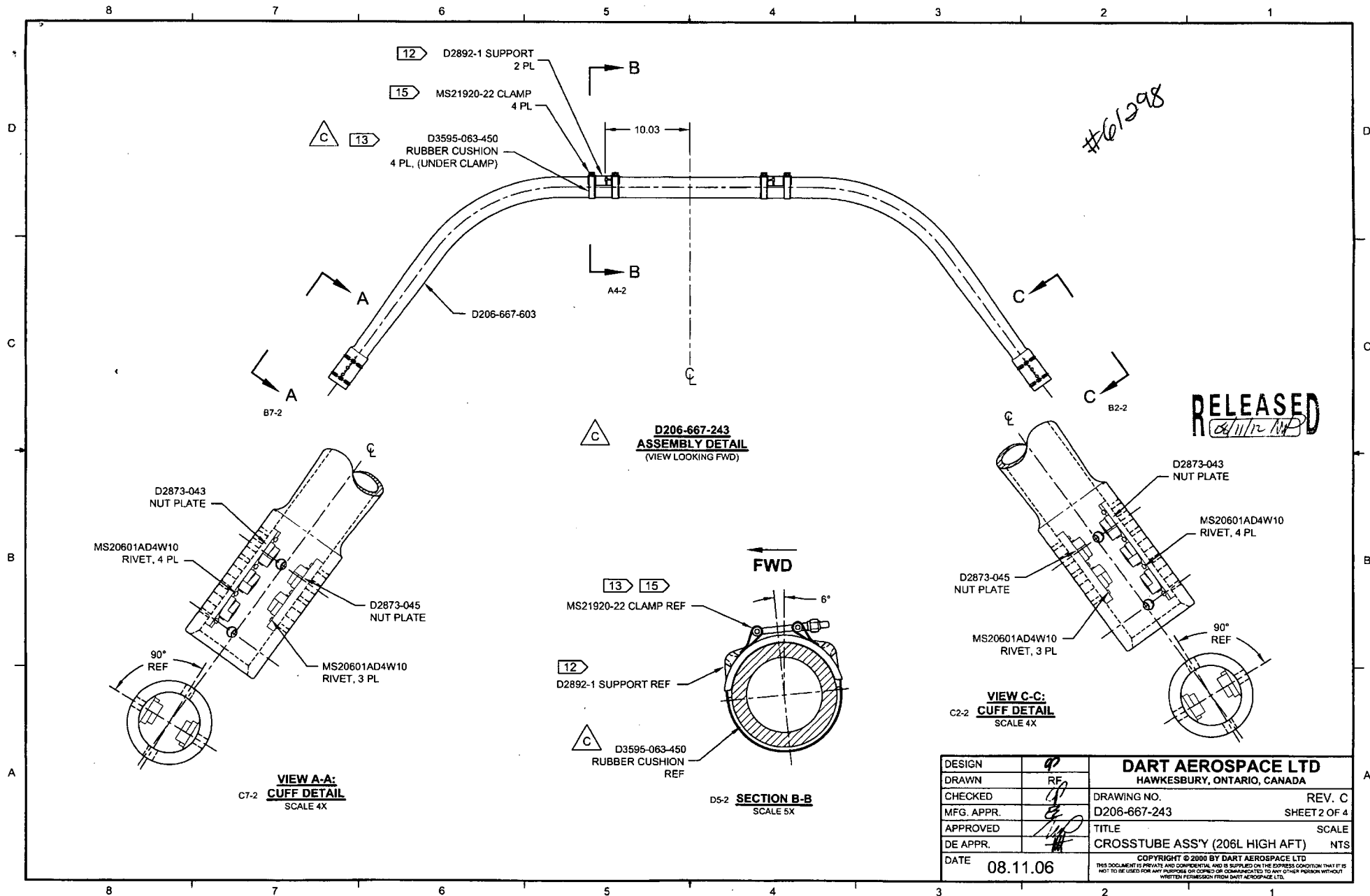
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



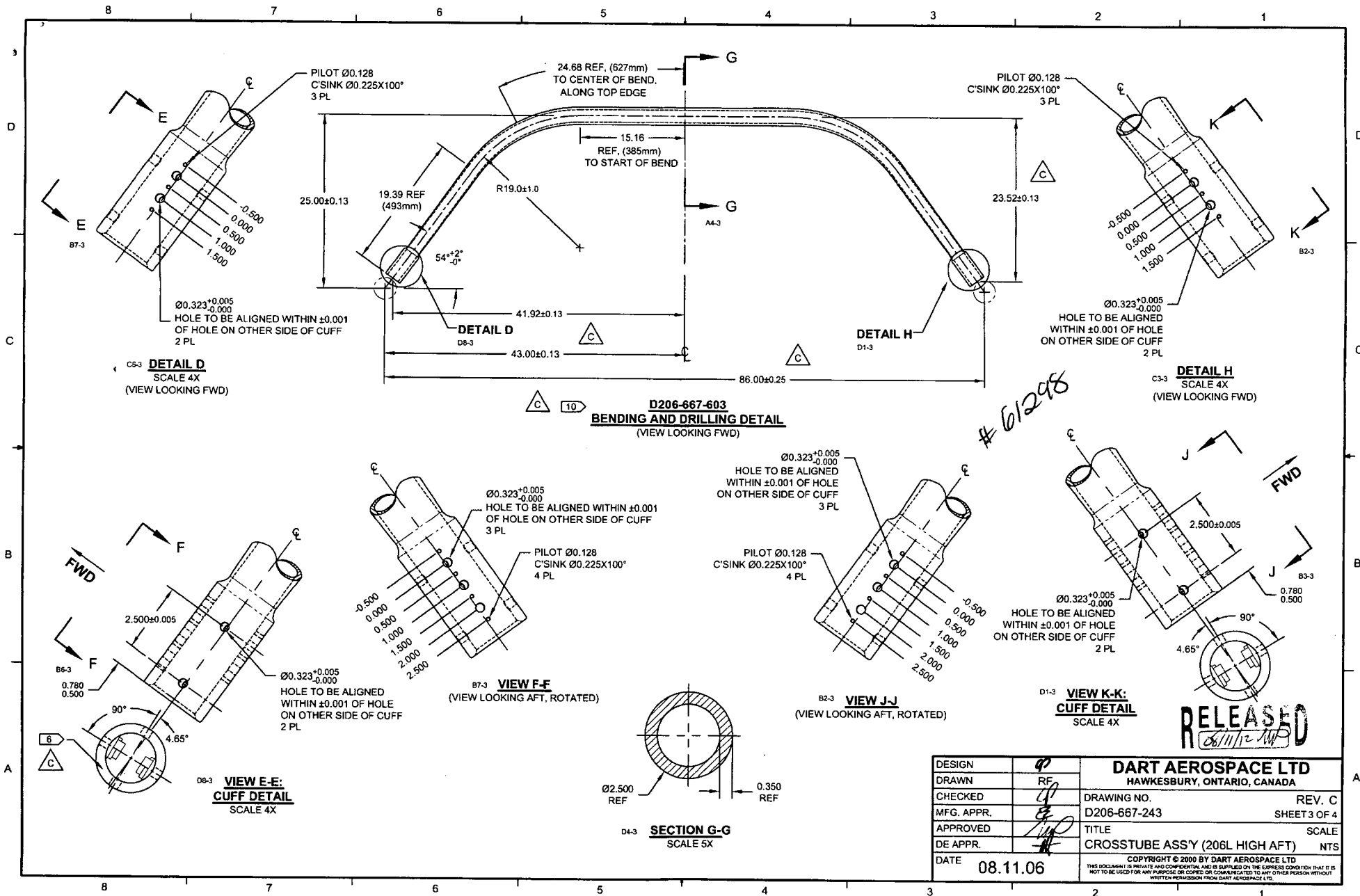
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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries



DESIGN	9	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	CP	DRAWING NO.	REV. C
MFG. APPR.	CP	D206-667-243	SHEET 3 OF 4
APPROVED	CP	TITLE	SCALE
DE APPR.	CP	CROSSTUBE ASS'Y (206L HIGH AFT)	NTS
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W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

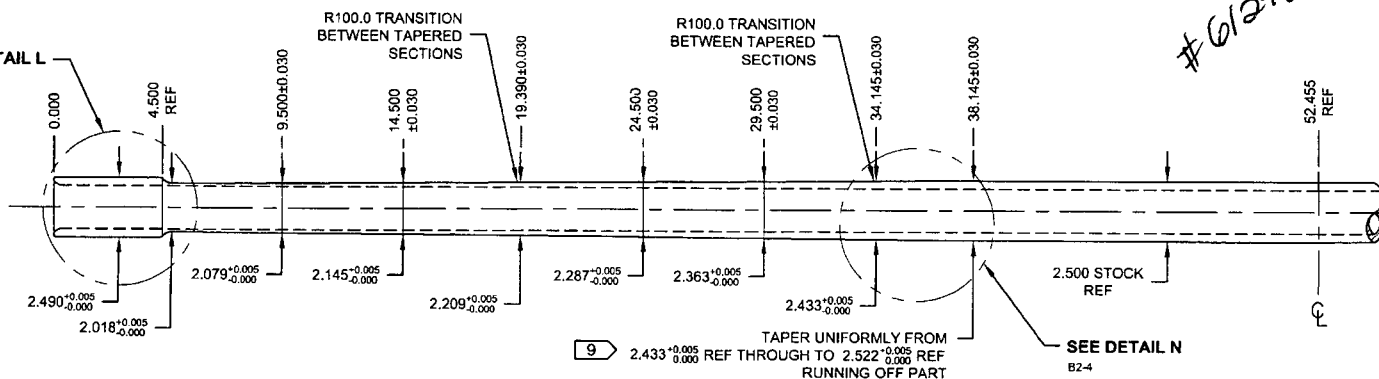
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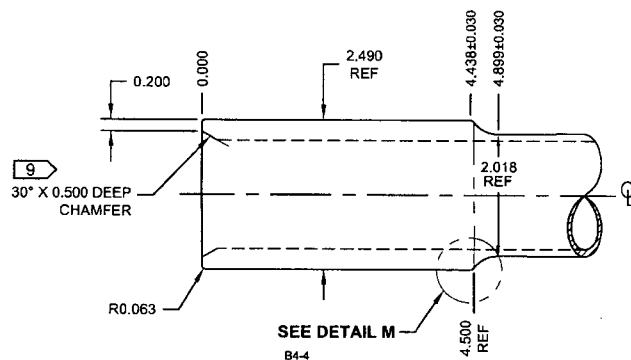
**NOTE:** Date & initial all entries



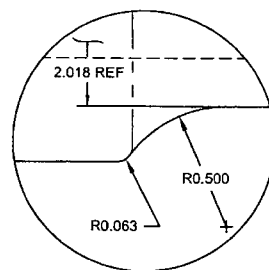
SEE DETAIL L  
B7-4



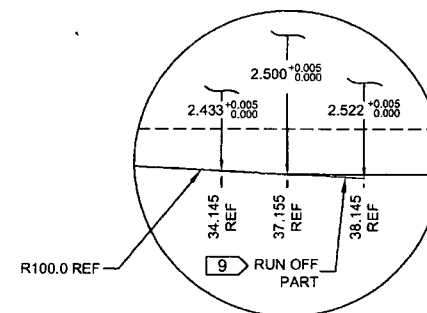
**TURNING DETAIL**



**DETAIL L: CROSSTUBE CUFF**  
NOT TO SCALE



**DETAIL M: CUFF TRANSITION**  
NOT TO SCALE



**DETAIL N: TAPER RUN-OFF**  
NOT TO SCALE

**RELEASED**  
08/11/06

DESIGN	4	<b>DART AEROSPACE LTD</b>	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED	4	DRAWING NO.	REV. C
MFG. APPR.	4	D206-667-243	SHEET 4 OF 4
APPROVED	4	TITLE	SCALE
DE APPR.	4	CROSSTUBE ASS'Y (206L HIGH AFT)	NTS
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**NOTE:** Date & initial all entries



## LIQUID PENETRANT TEST REPORT

P- 15193

PAGE 1 OF 1

CLIENT DACT Aerospace DATE SEP-21-2010 TIME AM ☒ PM ☐  
ATTENTION LINDA / CHATTEL ACUREN JOB No. 188-10-0889  
ADDRESS 1270 ABELEEN ST. PO/WO No. 12675  
HAWKES BURY, ON. WORK LOCATION HAWKES BURY PLANT  
ACCEPTANCE STD. ASTM 1417 REV./DATE 2005  
PROJECT F. P. I. (10) ON CROSS TUBES  
ITEM(S) EXAMINED (7) MACHINED PARTS

JOB DESCRIPTION PROCEDURE No. LT0002 REV./DATE TECHNIQUE No. LT1002 REV./DATE  
PART No. MATERIAL STAINLESS STEEL THICKNESS  
SCOPE WET FLUORESCENT LIQUID PENETRANT 2 + ALUMINUM ALUMINUM  
INSPECTION CARRIED OUT ON 100% EXTERNAL SURFACE

TEST DETAILS  
METHOD ☒ FLUORESCENT ☐ VISIBLE ☒ WATER WASH ☐ SOLVENT REMOVABLE ☐ POST EMULSIFIED  
FAMILY BRAND MAGNA FLUX BLACK LIGHT S/N 16459 ☐ OUTPUT > 1000  $\mu$ W/cm<sup>2</sup> ☐ AMBIENT < 2 fc  
PENETRANT ZL67 MINIMUM DWELL TIME 45 MIN. LIGHTING EQUIP. ☐ FLASHLIGHT ☐ TROUBLELIGHT ☐ OUTPUT > 100 fc @ SURFACE  
PENETRANT REMOVER H2O MINIMUM DRY TIME 5 MIN. OTHER LAB. NO  
DEVELOPER SKD 52 MINIMUM DWELL TIME 10 MIN. LIGHT METER S/N 1098866 CAL DUE DATE OCT 17  
DEVELOPER TYPE ☒ NON AQUEOUS ☐ AQUEOUS ☐ DRY 2010

TEST SURFACE  
SURFACE CONDITION ☐ AS GROUND ☐ AS WELDED ☒ MACHINED ☐ SHOT BLASTED ☒ CLEAN BARE METAL  
SURFACE TEMPERATURE ☐ < -4°C/ 20°F ☐ -4°C/ 20°F TO 10°C/50°F ☒ 10°C/50°F TO 52°C/125°F ☐ > 52°C/125°F

RESULTS- ☒ METRIC ☐ IMPERIAL  
7 SLEEVE'S → W.O. 62188 ✓  
1 CROSS TUBE → W.O. 61290 ✓  
1 CROSS TUBE → W.O. 61291 ✓  
1 CROSS TUBE → W.O. 61418 ✓  
1 CROSS TUBE → W.O. 61417 ✓  
1 CROSS TUBE → W.O. 61959 ✓  
1 CROSS TUBE → W.O. 61958 ✓  
1 CROSS TUBE → W.O. 61852 ✓  
1 CROSS TUBE → W.O. 61853 ✓  
1 CROSS TUBE → W.O. 61507 ✓  
1 CROSS TUBE → W.O. 61508 ✓  
INDICATIONS ON CROSS TUBES  
W.O. #'S → 61852, 61853.  
ML 10-08-27

Scope of Services  
The agreement of Acuren Group Inc. to perform services extends only to those services provided for in writing. Under no circumstances shall such services extend beyond the performance of the requested services. It is expressly understood that all descriptions, comments and expressions of opinion reflect the opinions or observations of Acuren Group Inc. based on information and assumptions supplied by the owner/operator and are not intended nor can they be construed as representations or warranties. Acuren Group Inc. is not assuming any responsibilities of the owner/operator and the owner/operator retains complete responsibility for the engineering, manufacture, repair and use decisions as a result of the data or other information provided by Acuren Group Inc. In no event shall Acuren Group Inc.'s liability in respect of the services referred to herein exceed the amount paid for such services.  
Standard of Care  
In performing the services provided, Acuren Group Inc. uses the degree, care and skill ordinarily exercised under similar circumstances by others performing such services in the same or similar locality. No other warranty, expressed or implied, is made or intended by Acuren Group Inc.

SIGNATURES  
CLIENT REPRESENTATIVE Eric Downing DTR # E63391  
TECHNICIAN (SIGNATURE): Mike / J. Huson SIGNATURE  
NAME (PRINT): Mike / J. Huson REPORT REVIEWED BY:  
1<sup>st</sup> TECHNICIAN 2<sup>nd</sup> TECHNICIAN  
CGSB LEVEL II SNT LEVEL \_\_\_\_\_ CGSB LEVEL \_\_\_\_\_ SNT LEVEL \_\_\_\_\_  
CGSB REG. No. 6606 CGSB REG. No. \_\_\_\_\_